

The invention claimed is:

1. An isolator to be used in a suspension system for a vehicle, the isolator comprising:

a front shaft;

5 a rear shaft;

means for attaching said front shaft and said rear shaft to the vehicle, said front shaft and rear shaft being rotatable relative to said attaching means;

a front transitional arm attached to said front shaft;

a rear transitional arm attached to said rear shaft;

10 a resilient member attached to said front transitional arm and attached to said rear transitional arm;

a front link arm attached to said front shaft;

a rear link arm attached to said rear shaft;

15 wherein when force is applied to said front link arm, said front shaft and said front transitional arm rotate and said resilient member is compressed or expanded; and

wherein when force is applied to said rear link arm, said rear shaft and said rear transitional arm rotate and said resilient member is compressed or expanded.

2. An isolator as defined in claim 1, wherein

20 said front transitional arm is a slack adjuster and said rear transitional arm is a slack adjuster;

said front transitional arm being capable of rotation relative to said front shaft;

and

said rear transitional arm being capable of rotation relative to said rear shaft.

3. An isolator as defined in claim 2, further including:

25 a shaft aperture within said front transitional arm having a spline therein;

a shaft aperture within said rear transitional arm having a spline therein;

a spline on at least a portion of said front shaft;

a spline on at least a portion of said rear shaft;
wherein said portion of said front shaft is positioned within said shaft aperture
in said front transitional arm and said spline on said front shaft mates with said spline
of said front transitional arm; and

5 wherein said portion of said rear shaft is positioned within said shaft aperture
in said rear transitional arm and said spline on said rear shaft mates with said spline of
said rear transitional arm.

4. An isolator as defined in claim 2, further including:
 a front transitional arm adjustment associated with said front transitional arm
10 for rotating said front transitional arm relative to said front shaft; and
 a rear transitional arm adjustment associated with said rear transitional arm for
rotating said rear transitional arm relative to said rear shaft.

5. An isolator as defined in claim 1, wherein said resilient member is an air bag.

6. An isolator as defined in claim 5, wherein said front transitional arm further
15 includes a front air bag attachment bracket and said rear transitional arm further
includes a rear air bag attachment bracket and wherein an air bag aperture is provided
through one of said air bag attachment brackets.

7. An isolator as defined in claim 6, further including an air hose connected to
said air bag aperture.

20 8. An isolator as defined in claim 5, wherein said front transitional arm further
includes at least one rearward extending safety stop and wherein said rear transitional
arm further includes at least one forward extending safety stop.

9. An isolator as defined in claim 1, wherein said front transitional arm is fixedly attached to said front shaft and wherein said rear transitional arm is fixedly attached to said rear shaft.
10. An isolator as defined in claim 1, further including:
5 a front shackle mounted to said front spring arm, and
a rear shackle mounted to said rear spring arm.
11. An isolator as defined in claim 10, wherein said front shackle and said rear shackle can be exchanged for an alternative front shackle and rear shackle.
- 10 12. An isolator as defined in claim 1, wherein said attaching means includes:
bearings mounted proximate ends of said front shaft; and
bearings mounted proximate ends of said rear shaft.
13. An isolator as defined in claim 12, wherein said bearings are tapered.
14. An isolator as defined in claim 1, wherein said attaching means includes:
15 an inner bearing plate mounted proximate inner ends of said front and rear shafts; and
an outer bearing plate mounted proximate outer ends of said front and rear shafts.
- 20 15. A suspension system for a vehicle having a frame a front axle and a rear axle, the suspension system comprising:
a front leaf spring having a first end and a second end, said first end being attached to the frame of the vehicle and supporting a front axle;
a rear leaf spring having a first end and a second end, said first end being
25 attached to the frame of the vehicle and supporting a rear axle;

- an isolator including:
a front shaft;
a rear shaft;
means for attaching said front shaft and said rear shaft to the vehicle, said front
5 shaft and rear shaft being rotatable relative to said attaching means;
a front transitional arm attached to said front shaft;
a rear transitional arm attached to said rear shaft;
a resilient member attached said front transitional arm and attached to said rear
transitional arm;
10 a front link arm attached to said front shaft;
a rear link arm attached to said rear shaft;
a front shackle attached to said front link arm and to said front leaf spring;
a rear shackle attached to said rear link arm and to said rear leaf spring;
wherein when force is applied to said front leaf spring, said front link arm,
15 said front shaft, and said front transitional arm rotate and said resilient member is
compressed or expanded; and
wherein when force is applied to said rear leaf spring, said rear leaf spring,
said rear shaft, and said rear transitional arm rotate and said resilient member is
compressed or expanded.
- 20 16. A suspension system as defined in claim 15, wherein
said front transitional arm is a slack adjuster and said rear transitional arm is a
slack adjuster;
said front transitional arm being capable of rotation relative to said front shaft;
and
25 said rear transitional arm being capable of rotation relative to said rear shaft.
17. A suspension system as defined in claim 16, further including:
a shaft aperture within said front transitional arm having a spline therein;

a shaft aperture within said rear transitional arm having a spline therein;
a spline on at least a portion of said front shaft;
a spline on at least a portion of said rear shaft;
wherein said portion of said front shaft is positioned within said shaft aperture
5 in said front transitional arm and said spline on said front shaft mates with said spline
of said front transitional arm; and
wherein said portion of said rear shaft is positioned within said shaft aperture
in said rear transitional arm and said spline on said rear shaft mates with said spline of
said rear transitional arm.

10 18. A suspension system as defined in claim 15, further including:
a front transitional arm adjustment associated with said front transitional arm
for rotating said front transitional arm relative to said front shaft;
a rear transitional arm adjustment associated with said rear transitional arm for
rotating said rear transitional arm relative to said rear shaft; and
15 wherein upon rotation of said front transitional arm relative to said front shaft,
said front leaf spring moves upward or downward and upon rotation of said rear
transitional arm relative to said rear shaft, said rear leaf spring moves upward or
downward.

20 19. A suspension system as defined in claim 15, wherein said front transitional
arm is fixedly attached to said front shaft and wherein said rear transitional arm is
fixedly attached to said rear shaft.

20. A suspension system as defined in claim 15, wherein said resilient member is
an air bag.

25 21. A suspension system as defined in claim 20, further including a fill valve in
fluid communication with said air bag.

22. A suspension system as defined in claim 20, further including an air pressure gauge in fluid communication with said air spring.

23. A method for adjusting the ride height of a vehicle having a frame comprising the steps of:

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providing a suspension system including:

a front leaf spring having a first end and a second end, said first end being attached to the frame of the vehicle;

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a rear leaf spring having a first end and a second end, said first end being attached to the frame of the vehicle;

an isolator including:

a front shaft,

a rear shaft,

a front transitional arm attached to said front shaft,

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a rear transitional arm attached to said rear shaft,

a resilient member attached to said front transitional arm and attached to said rear transitional arm,

a front link arm attached to said front shaft,

a rear link arm attached to said rear shaft,

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a front shackle attached to said front link arm and to said second end of said front leaf spring;

a rear shackle attached to said rear link arm and to said second end of said rear leaf spring;

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lengthening or shortening the front spring shackle and the rear spring shackle to achieve the desired ride height.

24. A method for adjusting the ride height of a vehicle having a frame comprising the steps of:

providing a suspension system including:

a front leaf spring having a first end and a second end, said first end being attached to the frame of the vehicle;

a rear leaf spring having a first end and a second end, said first end being attached to the frame of the vehicle;

5 an isolator including:

a front shaft,

a rear shaft,

a front transitional arm attached to said front shaft,

a rear transitional arm attached to said rear shaft,

10 a resilient member attached to said front transitional arm and attached to said rear transitional arm,

a front link arm attached to said front shaft,

a rear link arm attached to said rear shaft,

15 a front shackle attached to said front link arm and to said second end of said front leaf spring;

a rear shackle attached to said rear link arm and to said second end of said rear leaf spring;

rotating said front transitional arm relative to said front shaft to raise or lower said front leaf spring; and

20 rotating said rear transitional arm relative to said rear shaft to raise or lower said rear leaf spring.